

REMARKS

Claims 1-5, 9-16, 20-22, and 29-35 are all the claims presently pending in this application. Claims 1-5, 9-16, and 20-22 have been amended to more particularly define the invention. Claims 6-8, 17-19, and 23-28 have been canceled. Claims 29-35 have been added to claim additional features of the invention. Applicant reserves the right to file Divisional Applications on the canceled subject matter. No new matter has been added.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 1-5, 9, 10, 12-16, 20, and 21 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by Yi et al. (U.S. Patent Publication 2001/0004501 A1) as evidenced by Yamamoto et al. (European Patent Publication No. EP 1265303 A1).

Claims 11 and 22 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Yi as evidence by Yamamoto in view of Cipollini (U.S. Patent No. 6,379,827 B1), and further in view of Andelman (U.S. Patent Publication No. 2004/0012913 A1).

However, Applicant respectfully submits that the above 35 U.S.C. § 102(b) and the 35 U.S.C. § 103(a) rejections are clearly erroneous. Specifically, Yamamoto was published on December 12, 2002. The present invention has a priority date of July 3, 2002. Thus, Yamamoto is not a prior art reference of the present invention, and cannot be applied in a prior art rejection against the present invention. Therefore, since the 35 U.S.C. § 102 and 103 rejections are clearly invalid, Applicant respectfully requests the Examiner to withdraw the aforementioned rejection and issue a new Non-Final Office Action.

These rejections are respectfully traversed in view of the following discussion.

I. THE CLAIMED INVENTION

An exemplary embodiment of the claimed invention (e.g. as recited in claim 1) is directed to a fuel cell including a liquid fuel supply section, a fuel electrode supplied with liquid fuel by the liquid fuel supply section, a solid electrolyte membrane, and an oxidizer electrode formed such that the solid electrolyte membrane is formed between the fuel electrode and the oxidizer electrode, the oxidizer electrode including a base material and a catalyst layer, the catalyst layer formed between the base material and the solid electrolyte membrane, the base material including a first layer having hydrophobic properties, and a second layer having hydrophilic properties, the first layer nearer to the catalyst layer than the second layer, the second layer including a roughened surface, the roughened surface including one of a sandblasted surface and an acid-treated surface.

In conventional fuel cells in which the fuel electrode is supplied with gas, water is not efficiently discharged in the direction from the catalyst layer to the base material of the oxidizer electrode. Accordingly, the water is pushed back to the electrolyte membrane, which decreases efficiency in the evaporation of water from the surface of the base material of the oxidizer electrode. In addition, it has been difficult to achieve improvement in output characteristics as well as reduction in the size of the fuel cell. A liquid fuel supply type fuel cell, however, requires higher-level water discharge efficiency in the oxidizer electrode. With the difference between a liquid fuel supply type fuel cell and a fuel cell supplied with gas as fuel, it is necessary to resolve the problem concerning the discharge and removal of water present in the oxidizer electrode (Application at page 5, line 25 to page 6, line 7).

On the other hand, the exemplary embodiment of the claimed invention includes a fuel cell including a second layer including a roughened surface, the roughened surface including one of a

sandblasted surface and an acid-treated surface (Application at page 11, paragraphs 2-4). This exemplary feature may provide a fuel cell in which it is possible to secure a path for moving water promptly and evaporate the water efficiently from the surface (Application at page 11, paragraphs 2-4).

II. THE PRIOR ART REJECTIONS

A. The Yi Reference as Evidenced by Yamamoto

Yi discloses a fuel cell power plant (Yi at Abstract). The Examiner alleges that Yi anticipates the claimed invention. However, Yi clearly fails to teach or suggest all features of the claimed invention. Specifically, Yi clearly fails to teach or suggest a fuel cell, “comprising... a second layer ... comprising a roughened surface, said roughened surface comprising one of a sandblasted surface and an acid-treated surface”, as is recited, for example, in claim 1 (Application at page 11, paragraphs 2-4).

The Examiner fails to substantively consider this exemplary feature in the Office Action dated October 22, 2008. Regardless, neither Yi nor Yamamoto teaches this exemplary feature.

In addition, the Examiner alleges that Yi “discloses a water transport plate (86) to be made of porous graphite.” The Examiner alleges that this teaches the invention of claims 9, 10, 20, and 21. However, the third layer of claims 9, 10, 20, and 21 has hydrophobic properties. There is no teaching or suggestion by Yi of the water transport plate 86 having hydrophobic properties. In fact, Yi teaches that the water transport plate 86 has hydrophilic properties (Yi at paragraph [0057]). Further, Yi fails to teach that the water transport plate 86 is made of porous graphite as the Examiner alleges.

Therefore, Applicant respectfully requests the Examiner to reconsider and withdraw this rejection.

B. The Cipollini and Andelman References

To make up for the deficiencies of Yi, the Examiner applies Cipollini and Andelman. The Examiner alleges that Cipollini teaches “two conductive porous plates . . . bonded together” (Office Action at page 5). The Examiner alleges that Andelman teaches “fuel cell electrodes . . . bonded by PTFE” (Office Action at page 5).

However, Cipollini and Andelman, even assuming (arguendo) combination with Yi, fail to make up for the deficiencies of Yi highlighted in Section A by clearly failing to teach or suggest a fuel cell, “comprising . . . a second layer . . . comprising a roughened surface, said roughened surface comprising one of a sandblasted surface and an acid-treated surface”, as is recited, for example, in claim 1 (Application at page 11, paragraphs 2-4).

Specifically, the Examiner relies on the application of Yi to claims 9, 10, 20, and 21 to combine Cipollini and Andelman to allegedly teach the invention of claims 11 and 22. As previously stated, Yi clearly fails to teach the invention of claims 9, 10, 20, and 21. Thus, a *prima facie* case of obviousness is not established.

Therefore, Applicant respectfully requests the Examiner to reconsider and withdraw this rejection.

III. NEW CLAIMS

New claims 29-35 have been added to claim additional features of the invention and to provide more varied protection for the claimed invention. This claim is independently patentable because of the novel and nonobvious features recited therein.

Applicant submits that the new claims are patentable over the cited prior art references at least for analogous reasons to those set forth above.

IV. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicant submits that claims 1-5, 9-16, 20-22, and 29-35, all of the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

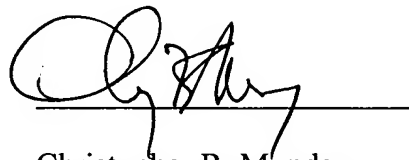
Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

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